

JC972 U.S. PTO  
09/851516  
05/08/01

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: John W. Lough, Jr., et al.

Date: May 8, 2001

Serial No.:

Group Art Unit:

Filed: Herewith

Examiner:

File No.: 650053.91134

Title: BONE MORPHOGENETIC PROTEIN AND FIBROBLAST GROWTH FACTOR  
COMPOSITIONS AND METHODS FOR THE INDUCTION OF  
CARDIOGENESIS

INFORMATION DISCLOSURE STATEMENT

Commissioner For Patents  
Washington DC 20231

Dear Sir:

Enclosed is a completed Form PTO-1449 listing documents which the Applicants in the above-identified application wish to bring to the attention of the Examiner for consideration in connection with the examination on the merits of this application.

This application is a continuation-in-part of USSN 09/056,513, filed April 7, 1998, for "Bone Morphogenetic Protein and Fibroblast Growth Factor Compositions and Methods for the Induction of Cardiogenesis." by John W. Lough, Matthew R. Barron, Michele A. Brogley, Xiaolei Zhu, and John E. Baker. All documents listed on the Form PTO-1449 were previously cited by or submitted to the Office in connection with USSN 09/056,513. Pursuant to 1.98(d), copies of documents that were earlier cited by or submitted to the Office in a prior application are not included herein.

No fee is believed due in connection with this submission. However, should any fee be due, please charge the fee to Deposit Account No. 17-0055.

Respectfully submitted.



Zhibin Ren  
Reg. No. 47,897  
Attorney for Applicant  
QUARLES & BRADY  
P.O. Box 2113  
Madison, WI 53701

Form PTO-1449  
(Rev. 2-88)U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICEATTY/AGEN. NO.  
650053.91134

SERIAL NO.

PRO

APPLICANT(S): Lough et al.

FILING DATE Herewith

GROUP

U54510  
05/08/01  
05/08/01  
05/08/01INFORMATION DISCLOSURE STATEMENT  
BY APPLICANT

(Use several sheets if necessary)

## U.S. PATENT DOCUMENTS

* EXAMINER'S INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		5,932,216	08/03/99	Celeste et al.	424	158.1	
		5,013,649	5/7/97	Wang, et al.			

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
		WO 93/05823	1.4.93	PCT				

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

		Alberts et al., MOLECULAR BIOLOGY OF THE CELL: 1142 (1994).					
		Barron, M. et al., "Requirement for BMP and FGF Signaling During Cardiogenic Induction in Non-Precardiac Mesoderm Is Specific, Transient, and Cooperative," DEVELOPMENTAL DYNAMICS 218: 383-393 (2000).					
		Cummins, P. et al., "Fibroblast and Transforming Growth Factors in the Heart: A Role in Cardiac Growth?", pp. 17-30, 1993.					
		Eisenberg, C.A. and D.M. Bader, "Establishment of the Mesodermal Cell Line ACE-6, A Model System for Cardiac Cell Differentiation," CIRC. RES. 78(2):205-216, 1996.					
		Florini et al., "Actions of anabolic hormones and growth factors on cultured neonatal heart cells," GROWTH REGUL. 5: 28-35 (1995).					
		Florini, J.R. and K.A. Magri, "Effects of Growth Factors on Myogenic Differentiation," AM. PHYSIOL. SOC. C701-C711, 1989.					
		Kimmel, D. and M. Kirschner, "Synergistic Induction of Mesoderm by FGF and TGF- $\beta$ and the Identification of an mRNA Coding for FGF in the Early Xenopus Embryo," CELL 51:869-877, 1987.					
		Legendre et al., "The expression of matrix metalloproteinases and their inhibitors by pig synovial cells and their regulation by combinations of cytokines and growth factors," COMPOSITION. BIOCHEM. PHYSIOL. 106: 691-704 (1993).					
		Lough, J. et al., "Rapid Communication--Combined BMP-2 and FGF-4, but Neither Factor Alone, Induces Cardiogenesis in Non-Precardiac Embryonic Mesoderm," DEVELOP. BIOL. 178:198-202, 1996.					
		Mima, T. et al., "Fibroblast Growth Factor Receptor is Required for <i>in vivo</i> Cardiac Myocyte Proliferation at Early Embryonic Stages of Heart Development," PROC. NATL. ACAD. SCI. USA 92:467-471, 1995.					
		Nathan et al., "Cytokines in Context," JOURNAL OF CELL BIOLOGY 113: 981-986 (1991).					
		Neubüser, A. et al., "Antagonistic Interactions Between FGF and BMP Signaling Pathways: A Mechanism for Positioning the Sites of Tooth Formation," CELL 90:247-255, 1997.					
		Niswander, L. and G.R. Martin, "FGF-4 and BMP-2 have Opposite Effects on Limb Growth," NATURE 361:68-71, 1993.					
		Parker, T.G. et al., "TGF- $\beta$ 1 and Fibroblast Growth Factors Selectively Up-regulate Tissue-specific Fetal Genes in Cardiac Muscle Cells," pp. 152-164, 1991.					
		Reifers, F. et al., DEVELOPMENT 127: 225-235 (2000).					
		Sasai, Y. and E.M. De Robertis, "Review--Ectodermal Patterning in Vertebrate Embryos," DEVEL. BIOL. 182:5-20, 1997.					
		T.M. Schultheiss, et al., "A Role for Bone Morphogenetic Proteins in the Induction of Cardiac Myogenesis," GENES DEV. 11(4):451-462, 1997.					
		Shah, M. et al., "Neutralisation of TGF-beta 1 and TGF-beta 2 or exogenous addition of TGF-beta 3 to cutaneous rat wounds reduces scarring," J. CELL SCI. 108: 985-1002 (1995).					

EXAMINER

DATE CONSIDERED

\* EXAMINER: Initial if a citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. QBMAD1303677

Form PTO-1449  
(Rev. 2-88)U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

ATTY/CKET NO

SERIAL NO

650053.91134

APPLICANT(S) Lough et al.

FILING DATE Herewith

GROUP

**INFORMATION DISCLOSURE STATEMENT  
BY APPLICANT**  
*(Use several sheets if necessary)*
**U.S. PATENT DOCUMENTS**

* EXAMINER'S INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

**FOREIGN PATENT DOCUMENTS**

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO

**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

		Sugi, Y. et al., "Inhibition of Precardiac Mesoderm Cell Proliferation by Antisense Oligodeoxynucleotide Complementary to Fibroblast Growth Factor-2 (FGF-2)," DEVELOP. BIOL. 157:28-37, 1993.
		Y. Sugi and J. Lough, "Activin-A and FGF-2 Mimic the Inductive Effects of Anterior Endoderm on Terminal Cardiac Myogenesis <i>in Vitro</i> ," DEVELOP. BIOL. 168:567-574, 1995.
		Vukicevic et al., "Induction of nephrogenic mesenchyme by osteogenic protein 1 (bone morphogenetic protein 7)," PNAS 93: 9021-9026 (1996).

EXAMINER

DATE CONSIDERED

\* EXAMINER: Initial if a citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. QBMAD1\303677